features may be provided to guide the actuator plate **66**, such as rails and cooperating grooves. A component **40**—which may comprise liquid reagent module **10** described above—having one or more deformable fluid vessels, such as blisters **36** and **38**, is positioned within the actuator mechanism **50** beneath the articulated blister actuator platen assembly **52**.

[0190] Further details of the configuration of the articulated blister actuator platen assembly **52** and the operation thereof are shown in FIGS. **3**A-**6**B.

[0191] As shown in FIGS. **3**A and **3**B, the actuator platen assembly **52** includes a chassis **54**. A cam body **56** is disposed within a slot **57** of the chassis **54** and is attached to the chassis **54** by a first pivot **58**. A platen **64** is pivotally attached to the cam body **56** by means of a second pivot **60**. The cam body **56** is held in a horizontal, unactuated position within the slot **57** by means of a torsional spring **55** coupled around the first pivot **58**.

[0192] Cam body **56** further includes a cam surface **65** along one edge thereof (top edge in the figure) which, in the exemplary embodiment shown in FIG. **3**B, comprises an initial flat portion **61**, a convexly-curved portion **62**, and a second flat portion **63**. The sliding actuator plate **66** includes a cam follow **68** (a roller in the illustrated embodiment) rotatably mounted within a slot **72** formed in the actuator plate **66**. In an embodiment of the invention, one cam body **56** and associated platen **64** and cam follower **68** are associated with each deformable vessel (e.g. blister **36**) of the liquid reagent module **40**.

[0193] The actuator platen assembly **52** and the sliding actuator plate **66** are configured to be movable relative to each other. In one embodiment, the actuator platen assembly **52** is fixed, and the actuator plate **66** is configured to move laterally relative to the platen assembly **52**, supported by the V-rollers **74**. Lateral movement of the sliding actuator plate **66**, e.g., in the direction "A", causes the cam follower **68** to translate along the cam surface **65** of the cam body **56**, thereby actuating the cam body **56** and the platen **64** attached thereto.

[0194] In FIGS. **3**A and **3**B, before the sliding actuator plate **66** has begun to move relative to the actuator platen assembly **52**, the cam follower **68** is disposed on the initial flat portion **61** of the cam surface **65** of the cam body **56**. In FIGS. **4**A and **4**B, the sliding actuator plate **66** has moved relative to the actuator platen assembly **52** in the direction "A" so that the cam follower **68** has moved across the initial flat portion **61** of the cam surface **65** and has just begun to engage the upwardly curved contour of the convexly-curved portion **62** of the cam surface **65** of the cam body **56**.

[0195] In FIGS. **5**A and **5**B, the sliding actuator plate **66** has proceeded in the direction "A" to a point such that the cam follower **68** is at the topmost point of the convexly-curved portion **62** of the cam surface **65**, thereby causing the cam body **56** to rotate about the first pivot **58**. The platen **64** is lowered by the downwardly pivoting cam body **56** and pivots relative to the cam body **56** about the second pivot **60** and thereby compresses the blister **36**.

[0196] In FIGS. **6**A and **6**B, sliding actuator plate **66** has moved to a position in the direction "A" relative to the actuator platen assembly **52** such that the cam follower **68** has progressed to the second flat portion **63** of the cam surface **65**. Accordingly, the cam body **56**, urged by the torsion spring **55**, pivots about the first pivot **58** back to the unactuated position, thereby retracting the platen **64**.

[0197] Thus, the articulated blister actuator platen assembly **52** is constructed and arranged to convert the horizontal movement actuator plate **66** into vertical movement of the platen **64** to compress a blister, and movement of the platen does not require pneumatic, electromechanical, or other components at larger distances above and/or below the liquid module.

[0198] An alternative embodiment of a blister compression actuator mechanism is indicated by reference number **80** in FIGS. **7**A and **7**B. Actuator **80** includes a linear actuator **82** that is coupled to a cam rail **84**. Cam rail **84** is supported for longitudinal movement by a first support rod **96** extending transversely through slot **86** and a second support rod **98** extending transversely through a second slot **88** formed in the cam rail **84**. The first support rod **96** and/or the second support rod **98** may include an annular groove within which portions of the cam rail **84** surrounding slot **86** or slot **88** may be supported, or cylindrical spacers may be placed over the first support rod **96** and/or the second support rod **98** on opposite sides of the cam rail **84** to prevent the cam rail **84** from twisting or sliding axially along the first support rail **96** and/or the second support rail **98**.

[0199] Cam rail **84** includes one or more cam profile slots. In the illustrated embodiment, cam rail **84** includes three cam profile slots **90**, **92**, and **94**. Referring to cam profile slot **90**, in the illustrated embodiment, slot **90** includes, progressing from left to right in the figure, an initial horizontal portion, a downwardly sloped portion, and a second horizontal portion. The shapes of the cam profile slots are exemplary, and other shapes may be effectively implemented. The actuator mechanism **80** also includes a platen associated with each cam profile slot. In the illustrated embodiment, actuator **80** includes three platens **100**, **102**, **104** associated with cam profile slots **90**, **92**, **94**, respectively. First platen **100** is coupled to the cam profile slot **90** by a cam follower pin **106** extending transversely from the platen **100** into the cam profile slot **90**. Similarly, second platen **102** is coupled to the second cam profile slot **92** by a cam follower pin **108**, and the third platen **104** is coupled to the third cam profile slot **94** by a cam follower pin **110**. Platens **100**, **102**, **104** are supported and guided by a guide **112**, which may comprise a panel having openings formed therein conforming to the shape of each of the platens.

[0200] In FIG. **7**A, cam rail **84** is in its furthest leftmost position, and the platens **100**, **102**, **104** are in their unactuated positions. Each of the cam follower pins **106**, **108**, **110** is in the initial upper horizontal portion of the respective cam profile slot **90**, **92**, **94**. As the cam rail **84** is moved longitudinally to the right, in the direction "A" shown in FIG. **7**B, by the linear actuator **82**, each cam follower pin **106**, **108**, **110** moves within its respective cam profile slot **90**, **92**, **94** until the cam follower pin is in the lower, second horizontal portion of the respective cam profile slot. Movement of each of the pins **106**, **108**, **110** downwardly within its respective cam profile slot **90**, **92**, **94** causes a corresponding downward movement of the associated platen **100**, **102**, **104**. This movement of the platens thereby compresses a fluid vessel (or blister) located under each platen. Each platen may compress a vessel directly in contact with the platen or it may contact the vessel through one or more intermediate components located between the vessel and the corresponding platen.

[0201] Thus, the blister compression actuator mechanism **80** is constructed and arranged to convert the horizontal movement cam rail **84**, driven by the linear actuator **82**, into vertical movement of the platens **100**, **102**, **104** to compress blisters, and movement of the platens does not require pneu-